



## OLGU SUNUMU / CASE REPORT

# Herpetic whitlow in a child with onychophagia: a rare form of cutaneous infection

Onikofajili çocukta herpetik dolama: kütanöz enfeksiyonun nadir bir formu

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### Abstract

Herpetic whitlow is a kind of finger infection caused by herpes simplex viruses. Herpetic ileus is a skin infection characterized by painful, nonpurulent, and erythematous lesions usually affecting the distal phalanx and rarely seen on the toes. It is especially common in children with finger-sucking and nail-biting habits. Often misdiagnosed as a bacterial infection, the disease sometimes receives inappropriate treatment. Physicians should be familiar with the subject for appropriate diagnosis and appropriate treatment. In addition, pediatricians, anesthesiologists, emergency physicians and dentists contact daily oral secretions of patients infected with the herpes simplex virus. For this reason, herpetic whitlow should be kept in mind as a professional risk for health workers. A 4-year-old girl with a history of Herpetic whitlow is presented in this article.

**Key words:** Herpetic whitlow, herpes simplex virüs, Tzanck test

### Öz

Herpetik dolama herpes simpleks virüslerinin neden olduğu bir çeşit parmak enfeksiyonudur. Herpetik dolama, genellikle distal falanksı etkileyen ve nadiren ayak parmaklarında görülen, ağrılı, nonpurulent ve eritemli veziküler lezyonlarla karakterize bir deri enfeksiyonudur. Çocuklarda nadir görülmekle birlikte parmak emme ve tırnak yeme alışkanlığı olan çocuklarda yaygındır. Bakteriyel enfeksiyonlar ile karıştığından sıklıkla yanlış tanı ve uygunsuz tedavilere neden olmaktadır. Hekimler uygun teşhis ve uygun tedavi için konu hakkında bilgi sahibi olmalıdır. Ayrıca, pediatrişter, anestesistler, acil hekimleri ve diş hekimleri her gün herpes simplex virüsü ile enfekte olmuş hastaların oral sekresyonlarıyla temas ederler. Bu nedenle, herpetik whitlow sağlık çalışanları için bir mesleki risk olarak akılda tutulmalıdır. Bu makalede herpetik dolama tanısı alan 4 yaşında bir kız hasta sunulmuştur.

**Anahtar kelimeler:** Herpetik dolama, herpes simplex virüs, Tzanck test

## INTRODUCTION

Viruses in the herpes family can cause major diseases in people because they are large and complex DNA viruses with envelopes and icosahedral capsids. Primary infection is through direct exogenous or autogenous inoculation through broken skin. The virus can be transmitted by saliva, vaginal secretions, or the fluid in any lesion<sup>1</sup>. While oropharyngeal HSV-1 infections cause latent infections in the trigeminal ganglion, genital HSV-2 infections remain latent in the sacral ganglia<sup>2</sup>. HSV causes cytolytic infection; the pathological changes depend on the inflammatory response with the necrosis of infected cells. Primary HSV infections

are generally not severe, and some are asymptomatic. Systemic infection is very rare. Viruses stay latent in infected ganglia throughout the lifetime of the host. Returning from the axon, the virus comes to the peripheric area and starts replication in the mucosa and the skin<sup>2</sup>. For this reason, recurrent infections occur in the same area. As intact skin is resistant to HSV, skin infection is rare in healthy people. Herpetic whitlow is a primary herpetic infection of the finger. It is seen mostly in medical staff involved in the care of patients with HSV, in children with the habit of thumb sucking<sup>1,2</sup>. The Tzanck test is an easy and inexpensive test. Intranuclear inclusion bodies, multinucleated giant cells, and syncytia formation, which are characteristic for HSV, are observed in the

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preparations stained with Wright's stain or Giemza from vesicle base <sup>3,4</sup>. In this article, a 4-year-old female patient treated for herpetic whitlow has been presented.



**Figure-1.** Pus collecting in the fingertips of the patient's right hand.



**Figure-2.** Pus was healed with antibiotics ; vesicles occurred toward the lower part of the finger.

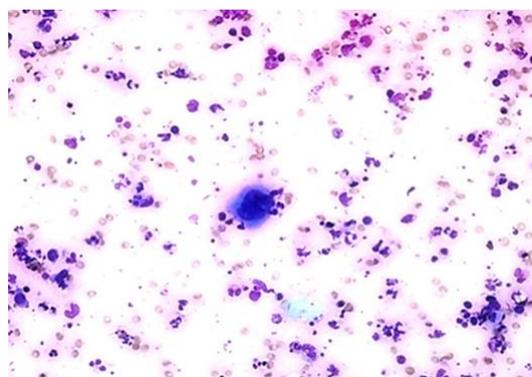
## CASE

A 4-year-old girl with a fever, runny nose, fatigue, and cough was admitted to a pediatrician's care and was started on symptomatic treatment, with a diagnosis of oral ulcers and pharyngitis. Then, because of the swelling, redness, and pus collecting in the fingertips of the patient's right hand (Figure 1), she was admitted to the hospital.

The patient started an oral antibiotic containing amoxicillin-clavulanic acid combination. Only one fingertip region containing pus was healed with antibiotics ; vesicles occurred toward the lower part of the finger and became worse every day (Figure 2).

Antibiotherapy was not sufficient for treatment of these lesions. The habit of thumb-sucking and nail-biting was discovered after questioning the patient upon her admission to a dermatology clinic. This information was also conveyed orally before gingivostomatitis herpetic vesicular lesions were diagnosed. Because the oral gingivostomatitis

occurred previously, the vesicular lesions were clinically diagnosed as herpetic whitlow. A Tzanck test, which is easy and fast, was performed to confirm the diagnosis. The test area was cleaned after getting consent from the patient's parents.



**Figure 3.** Multinucleated giant cells accompanying acantholytic keratinocytes.

After the intact vesicles' ceiling was opened, the edges and the base of the lesion were scraped with a scalpel without causing bleeding. The material obtained was spread on a slide and allowed to dry. It was evaluated by light microscopy after being stained with Giemsa. Multinucleated giant cells accompanying acantholytic keratinocytes, which are characteristic for viral diseases such as Herpes simplex varicella zoster, and shingles, were observed (Figure 3). Identification of positive test results in the Tzanck test confirmed the clinical diagnosis. After 10 days of using topical mupirocin and acyclovir, the lesions disappeared completely.

## DISCUSSION

A herpetic finger infection was reported for the first time in 1909 and thumb sucking was indicated as the main risk factor<sup>5</sup>. Herpetic finger infection in health personnel was defined as "*herpetic whitlow*," named not very conveniently for painless and pus-producing infections in 1959 and this term is widely used today <sup>6</sup>. The clinical course of herpetic whitlow in children was reported by Szinnai et al<sup>7</sup>. The lesions usually contain clear fluid initially, but after a week, the fluid of the vesicle becomes turbid as a result of the increased number of white blood cells. In our case, turbid liquid collection was observed at the patient's fingertips (Figure 1). Herpetic whitlow is a self-limiting disease and can heal spontaneously within 3 weeks<sup>8</sup>. It is reported to be observed often

in the forefinger. In our case, also, the lesion progressed to the lower part of forefinger of the right hand starting from the fingertips (Figures 1 and 2).

The most common source of infection in children and adolescents has been reported as gingivostomatitis and/or herpes labialis, detected in approximately half of the cases<sup>8</sup>. We believe that the source of infection was gingivostomatitis in this case too. It has been reported that transmission can occur when a mother with herpes labialis kisses the feet and hands of her baby as a sign of love or through close contact with other households, apart from autoinoculation<sup>8</sup>. Interestingly, in another case, it was reported that playground swing sets smeared with children's saliva were the most likely source of infection<sup>9</sup>.

The age distribution of patients with herpetic whitlow reaches a peak in the first 2 years of life<sup>8</sup>. Frequent finger-sucking behavior is the reason for a high prevalence of infection in this age group. In our case, there was nail-biting and finger-sucking behavior in a 4-year-old child. There are reports indicating an association between herpetic whitlow seen in older age and immunodeficiency<sup>10</sup>. It has also been reported that the etiological factor most commonly seen is HSV-17.

The most common complication associated with herpetic whitlow is reported to be superinfections caused by *Staphylococcus aureus* and other bacteria. Other associated complications are nail dystrophy, nail loss, ocular HSV infection, and HSV encephalitis, which occurred in one case after surgical incision in a finger lesion<sup>6</sup>. In our case, there has been no complication during the progression of the disease. Diagnosis of herpetic whitlow is generally made by clinical suspicion. Tzanck test can be used because it is a fast and inexpensive way to diagnose herpetic skin lesions<sup>6</sup>. In our case, the Tzanck test was used because it is cost effective and easily accessible, and it can identify multinucleated giant cells and acantholytic keratinocytes, which are characteristic for viral diseases like herpes simplex, chickenpox, and shingles (Figure 3). However, the sensitivity and specificity of the test is quite variable depending on the individual who is assessing it. The use of the Tzanck test has been reduced because of the increased use of other diagnostic tests like the direct fluorescent antibody and PCR tests<sup>1</sup>. Clinical differentiation between herpetic whitlow and bacterial finger infections is not always easy.

In a collection by Szinnai et al, only 6 out of 26 cases (23%) initially received an appropriate clinical diagnosis, and in 15 cases (65%), antimicrobiotherapy was started for bacterial infection. Furthermore, prediagnosis of bacterial infection can cause unnecessary surgical incision for vesicular drainage. This condition prolongs recovery and increases morbidity<sup>7</sup>. In our case, the patient was started on antimicrobiotherapy initially because of a bacterial infection diagnosis. Due to the lack of improvement in the lesion and predisposing factors in the patient's history, herpetic whitlow was considered. There is no study showing the effectiveness of topical or systemic acyclovir therapy on herpetic whitlow. On the other hand, it is not wrong to consider that acyclovir can be useful for herpetic whitlow treatment, like the other herpes infections. Though there is no need of special treatment for herpetic whitlow in children without any medical problem<sup>1,3</sup>. There are observations showing that systemic acyclovir use in children shortens the duration of the disease and prevents an increase of the number of lesions present<sup>10</sup>. In our case, *mupirocin* was added to local *acyclovir* for bacterial superinfections, and the lesions were healed in 2 weeks. Herpetic whitlow is a risk factor for health workers<sup>2</sup>.

Nowadays, due to misdiagnosis of bacterial infections it often gets wrong diagnosis and inappropriate therapy. Doctors should have information on this subject for correct diagnosis and appropriate therapy. This case presentation is prepared to attract attention to herpetic whitlow as a herpes virus infection form rarely seen which is misdiagnosed often and treated inappropriately in children. The pediatricians, emergency service doctors, dentists also contact with many patients' oral secretion contaminated with herpes virus probably everyday. For this reason herpetic whitlow should be kept in mind as a occupational risk for health workers.

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